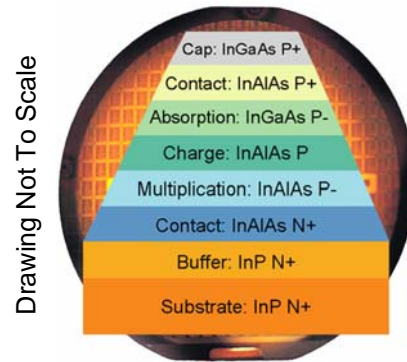


043643: 10Gb/s InGaAs/InAlAs Avalanche Photodiode (APD) Die

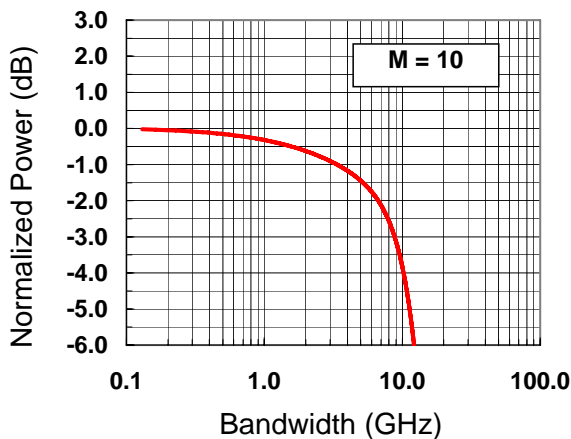
General Product Description

- High-quality epitaxial InGaAs/InAlAs avalanche photodiode (APD) device structures grown on InP substrates by MOVPE.
- 2.5 Gb/s device designs available.
- Spectrolab offers high-quality InGaAs (1.0 μm – 1.7 μm) avalanche photodiode epitaxial structures for the telecommunication market.
- The epitaxial structure is grown in Spectrolab's high-volume multi-wafer MOVPE reactors.

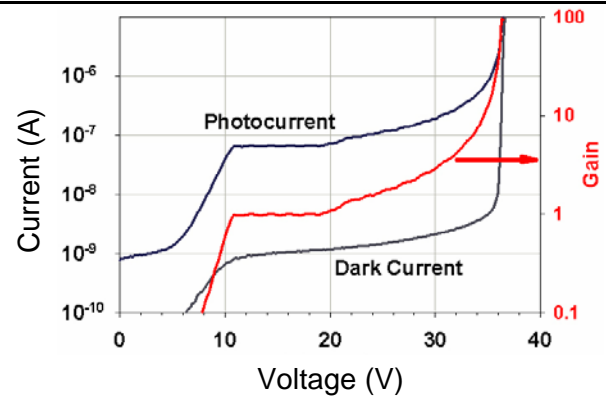


InAlAs APD Photodiode Die Structure

Frequency Response of 10Gb/s APD Die



InAlAs APD Die IV Data & Gain



10 Gb/s APD Specifications

Parameter	Test Conditions at: 0°C < T _{ambient} < 85°C (Unless Specified)	Min.	Max.	Unit
APD Responsivity	$\lambda = 1530$ to 1615 nm at $M = 10$ $\lambda = 1260$ to 1330 nm at $M = 10$	7.0 6.0	9.0 8.0	A / W A / W
APD Breakdown Voltage, V_{br}	$I_d = 100 \mu\text{A}$	30	40	V
Dark Current at $M = 10$	$T_a = 25^\circ\text{C}$	2	20	nA
Total APD Capacitance	$F = 1$ MHz at $M > 3$	0.15	0.25	pF
High Frequency Cut-Off	$R_L = 50 \Omega$, $3 < M < 10$ Ref. To 200 MHz	8	-	GHz
Bandwidth Flatness	$R_L = 50 \Omega$, $3 < M < 10$, $0.2 < F < 8$ GHz	-1.0	+1.0	dB
Noise Equivalent Power	$\lambda = 1550$ nm, $M = 10$	1.5×10^{-14}	5×10^{-14}	W / $\sqrt{\text{Hz}}$
Effective Optical Diameter	$\lambda = 1550$ nm, $M = 10$; $R > 7.0$ A / W, $P_{in} = -20$ dBm	24	28	μm

The information contained on this sheet is for reference only. Actual specifications for delivered products may vary. 7/9/06

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